

A list of proposers to BAA 03-41 Micro Electric Propulsion (MEP)

Broad Agency Announcement	Proposer	Contract
BAA 03-41	MIT	
BAA 03-41	Alameda Applied Sciences Corporation (AASC)	FA9300-04-C-0032 AFFTC/PKT Edwards AFB
BAA 03-41	SRI International	HR0011-04-C-0107 DARPA CMO Scott Ulrey
BAA 03-41	Naval Postgraduate School	
BAA 03-41	Northrop Grumman Space Technology	
BAA 03-41	University of Colorado at Boulder	
BAA 03-41	University of Michigan	

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE
PAGE OF PAGES
1 2
5. PROJECT NO. (If applicable)

2. AMENDMENT/MODIFICATION NO.
P00002

3. EFFECTIVE DATE
01-Feb-2005

4. REQUISITION/PURCHASE REQ. NO.
S83805

6. ISSUED BY

CODE

HR0011

7. ADMINISTERED BY (If other than item 6)

CODE

S0507A

DARPA
CMO
ATTN: SCOTT R. ULREY
3701 NORTH FAIRFAX DRIVE
ARLINGTON VA 22203-1714

DCMA SAN FRANCISCO
P.O. BOX 232
700 EAST ROTH ROAD, BLDG 330
FRENCH CAMP CA 95231-0232

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)
SRI INTERNATIONAL
333 RAVENSWOOD AVENUE
MENLO PARK CA 94025

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

X 10A. MOD. OF CONTRACT/ORDER NO.
HR0011-04-C-0107

X 10B. DATED (SEE ITEM 13)
12-Aug-2004

CODE 03652

FACILITY CODE

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer ☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:
(a) By completing Items 8 and 13, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted;
or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE
RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN
REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter,
provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)
See Schedule

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACT ORDERS
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE
CONTRACT ORDER NO. IN ITEM 10A.

B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying
office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

X D. OTHER (Specify type of modification and authority)
FAR 52.232-22 "Limitation of Funds"

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter
where feasible.)

Modification Control Number: pw elsh05336

The purpose of this modification is to apply incremental funding in the amount of \$315,988.00 to CLIN 0001. This action fully funds the base
period (CLIN 0001) of the contract. See page two (2).

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)

16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
(b)(6)

TEL: 571-218-4804

EMAIL: mblackstone@darpa.mil

15B. CONTRACTOR/OFFEROR

15C. DATE SIGNED

16B. UNITED STATES OF AMERICA
(b)(6)

16C. DATE SIGNED

(Signature of person authorized to sign)

EXCEPTION TO SF 30

APPROVED BY OIRM 11-84

30-105-04

01-Feb-2005

STANDARD FORM 30 (Rev. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

1. SECTION G - CONTRACT ADMINISTRATION DATA

a. Accounting and Appropriation

Summary for the Payment Office

As a result of this modification, the total funded amount for this document was increased by \$315,988.00 from \$604,000.00 to \$919,988.00.

CLIN 0001:

AC: 5753600 295 6001 671200 0000 659901 F448217 659901 was increased by \$315,988.00 from \$0.00 to \$315,988.00

The contract ACRN AC has been added.

b. The following has been modified (changes shown in bold):

G-6 Incremental Funding

(a) This contract shall be subject to incremental funding with **\$919,988** presently made available for performance under this contract. It is estimated that the funds presently available are sufficient to permit the Contractor's performance through **August 11, 2005**. Except in accordance with the Section I clause FAR 52.232-22, "Limitation of Funds," no legal liability of the part of the Government for payment of any money in excess of **\$919,988** shall arise unless and until additional funds are made available by the Contracting Officer through a modification to this contract.
(end of clause)

2. Except as modified above, all terms and conditions of Contract No. HR0011-04-C-0107 remain unchanged and in full force and effect.

(End of Summary of Changes)

AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE

PAGE OF PAGES

2. AMENDMENT/MODIFICATION NO.
P00001

3. EFFECTIVE DATE
20-Sep-2004

4. REQUISITION/PURCHASE REQ. NO.

5. PROJECT NO.(If applicable)

6. ISSUED BY

DARPA
CMO ATTN: MICHAEL D. BLACKSTONE
3701 N. FAIRFAX DR.
ARLINGTON VA 22203-1714

CODE HR0011

7. ADMINISTERED BY (If other than item 6)

DCMA SAN FRANCISCO
P.O. BOX 232
700 EAST ROTH ROAD, BLDG 330
FRENCH CAMP CA 95231-0232

CODE S0507A

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)

SRI INTERNATIONAL
333 RAVENSWOOD AVENUE
MENLO PARK CA 94025

CODE 03652

FACILITY CODE

9A. AMENDMENT OF SOLICITATION NO.

9B. DATED (SEE ITEM 11)

X 10A. MOD. OF CONTRACT/ORDER NO.
HR0011-04-C-0107

X 10B. DATED (SEE ITEM 13)
12-Aug-2004

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

☐ The above numbered solicitation is amended as set forth in item 14. The hour and date specified for receipt of Offer

☐ is extended, ☐ is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods:
(a) By completing Items 8 and 15, and returning _____ copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted;
or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE
RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN
REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter,
provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS.
IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE
CONTRACT ORDER NO. IN ITEM 10A.

X B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying
office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor ☒ is not, ☐ is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter
where feasible.)

The purpose of this modification is to change the Contracting Officer's Representative (COR). See Page Two (2).

Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)

15A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)

15B. CONTRACTOR/OFFEROR

15C. DATE SIGNED

(b)(6)

(b)(6)

BY (Signature of Contracting Officer)

16C. DATE SIGNED

20-Sep-2004

(Signature of person authorized to sign)

EXCEPTION TO SF 30
APPROVED BY OIRM 11-84

30-105-04

STANDARD FORM 30 (Rev. 10-83)
Prescribed by GSA
FAR (48 CFR) 53.243

SECTION SF 30 BLOCK 14 CONTINUATION PAGE

SUMMARY OF CHANGES

I. Change in Section F

The following clause, which is incorporated by full text, has been modified (changes are shown in bold):

F-3 Report Distribution

(a) DARPA/MTO

Attn: John Evans

3701 North Fairfax Drive
Arlington, VA 22203-1714
Email: (jevans@darpa.mil)
(one copy each report)

(b) DARPA/MTO

Attn: ADPM

3701 North Fairfax Drive
Arlington, VA 22203-1714
(one copy each report)

(c) DARPA/Library

3701 North Fairfax Drive
Arlington, VA 22203-1714
Email: library@darpa.mil
(one copy of the Final Technical Report)

(d) Defense Technical Information Center

(1) Email: TR@dtic.mil

(one electronic copy of the Final Technical Report, if unclassified)

OR

(2) Attn: DTIC-BCS

8725 John J. Kingman Road, Suite 0944
Fort Belvoir, VA 22060-0944

(two hard copies of the Final Technical Report if unclassified)

(e) DARPA/CMO

Attn: Scott Ulrey

3701 North Fairfax Drive
Arlington, VA 22203-1714
(one copy each report)

(f) DCMA SAN FRANCISCO

Attn: Janet Lopez

P.O. Box 232
French Camp, CA 95231-0232
(one copy each report)

(g) COR
Rick Ridgley
548 Lewis Street
Front Royal, VA 22630
(one copy each report)

2. Change in Section G

The following clause, which is incorporated by full text, has been modified (changes are shown in bold):

G-4 Contracting Officer's Representative (COR)

(a) Performance of work under this contract shall be subject to the technical direction of **Rick Ridgley, 548 Lewis Street, Front Royal, VA 22630, telephone 703-808-3115, e-mail: rridgley@adelphia.net**. Such technical direction includes those instructions to the Contractor necessary to accomplish the Statement of Work. The COR is not otherwise authorized to make any representations or commitments of any kind on behalf of the Contracting Officer or the Government. The COR does not have the authority to alter the Contractor's obligations or change the specifications of the contract.

(b) Technical direction shall not include any direction which:

- (1) Constitutes additional work outside the scope of work;
- (2) Constitutes a change as defined in Section I contract clause entitled "Changes";
- (3) In any manner causes an increase or decrease in the total estimated cost or the time required for contract performance; or
- (4) Changes any of the stated terms, conditions, or specifications of the contract.

3. All other terms and conditions of Contract No. HR0011-04-C-0107 remain unchanged.

[END OF MODIFICATION - NOTHING FOLLOWS]

AWARD/CONTRACT

2. CONTRACT (Proc. Inst. Ident.) NO.
HR0011-04-C-0107

5. ISSUED BY

DARPA
CMO ATTN: MICHAEL D. BLACKSTONE
3701 N. FAIRFAX DR.
ARLINGTON VA 22203-1714

CODE HR0011

1. THIS CONTRACT IS A RATED ORDER
UNDER DFAS (15 CFR 350)

3. EFFECTIVE DATE

12 Aug 2004

RATING

PAGE OF PAGES

1 25

4. REQUISITION/PURCHASE REQUEST/PROJECT NO.

6. ADMINISTERED BY (If other than Item 5)

DCMA SAN FRANCISCO
P.O. BOX 232
700 EAST ROTH ROAD, BLDG 330
FRENCH CAMP CA 95231-0232

CODE S0507A

7. NAME AND ADDRESS OF CONTRACTOR

(No., street, city, county, state and zip code)

SRI INTERNATIONAL
333 RAVENSWOOD AVENUE
MENLO PARK CA 94025

8. DELIVERY

[] FOB ORIGIN [X] OTHER (See below)

9. DISCOUNT FOR PROMPT PAYMENT

Net 30 Days

10. SUBMIT INVOICES

1

ITEM

(4 copies unless otherwise specified)
TO THE ADDRESS

Section G

SHOWN IN:

CODE 03652

11. SHIP TO/MARK FOR

CODE

FACILITY CODE

SEE SCHEDULE

13. AUTHORITY FOR USING OTHER THAN FULL AND OPEN
COMPETITION:

[] 10 U.S.C. 2304(c)() [] 41 U.S.C. 253(c)()

15A. ITEM NO.

15B. SUPPLIES/ SERVICES

SEE SCHEDULE

12. PAYMENT WILL BE MADE BY

DFAS COLUMBUS CENTER
WEST ENTITLEMENT OPERATIONS
P.O. BOX 182381
COLUMBUS OH 43218-2381

CODE HQ0339

14. ACCOUNTING AND APPROPRIATION DATA

See Schedule

15C. QUANTITY

15D. UNIT

15E. UNIT PRICE

15F. AMOUNT

15G. TOTAL AMOUNT OF CONTRACT

\$919,988.00

(X) SEC.

DESCRIPTION

PART I - THE SCHEDULE

X	A	SOLICITATION/ CONTRACT FORM	1 - 1
X	B	SUPPLIES OR SERVICES AND PRICES/ COSTS	2
X	C	DESCRIPTION/ SPECS/ WORK STATEMENT	5
X	D	PACKAGING AND MARKING	9
X	E	INSPECTION AND ACCEPTANCE	9
X	F	DELIVERIES OR PERFORMANCE	9
X	G	CONTRACT ADMINISTRATION DATA	12
X	H	SPECIAL CONTRACT REQUIREMENTS	15

16. TABLE OF CONTENTS

PAGE(S)

(X) SEC.

DESCRIPTION

PAGE(S)

X	I	CONTRACT CLAUSES	21
X	J	LIST OF ATTACHMENTS	25
	K	REPRESENTATIONS, CERTIFICATIONS AND OTHER STATEMENTS OF OFFERORS	
	L	INSTRS CONDS AND NOTICES TO OFFERORS	
	M	EVALUATION FACTORS FOR AWARD	

CONTRACTING OFFICER WILL COMPLETE ITEM 17 OR 18 AS APPLICABLE

17. [X] CONTRACTOR'S NEGOTIATED AGREEMENT

Contractor is required to sign this document and return 2 copies to issuing office. Contractor agrees to furnish and deliver all items or perform all the services set forth or otherwise identified above and on any continuation sheets for the consideration stated herein. The rights and obligations of the parties to this contract shall be subject to and governed by the following documents: (a) this award/contract, (b) the solicitation, if any, and (c) such provisions, representations, certifications, and specifications, as are attached or incorporated by reference herein. (Attachments are listed herein.)

19A. NAME AND TITLE OF SIGNER

(Type or print)

Lori L. Mazzei

Contract Administrator

19B. NAME OF CONTRACTOR

BY *Lori L. Mazzei*
(Signature of person authorized to sign)

19C. DATE SIGNED

18 Aug 04

18. [] AWARD (Contractor is not required to sign this document.)

Your offer on Solicitation Number

including the additions or changes made by you which additions or changes are set forth in full above, is hereby accepted as to the items listed above and on any continuation sheets. This award consummates the contract which consists of the following documents: (a) the Government's solicitation and your offer, and (b) this award/contract. No further contractual document is necessary.

20A. NAME AND TITLE OF CONTRACTING OFFICER

(b)(6)

(b)(6)

20B. DATE SIGNED

18 Aug 2004

28-107

GPO 1985 O - 469-794

STANDARD FORM 28 (REV. 4-85)

Prescribed by GSA
FAR (48 CFR) 53.214(a)

NSN 7540-01-152-8069

PREVIOUS EDITION UNUSABLE

SECTION B Supplies or Services and Prices

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0001	Micro Ion Thruster System Development CPFF - In accordance with the Statement of Work, Attachment 1. Design and demonstrate a thruster gated nozzle that meets the proposed program objectives as best as possible, including suggested design options to meet future phase objectives. PURCHASE REQUEST NUMBER S938/00/01	(b)(4)	(b)(4)	\$919,988.00
	ACRN AA Funded Amount			\$
	ACRN AB Funded Amount			\$254,000.00
				\$350,000.00

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0002	Reports and Data CPFF - Reports and Data in accordance with Section C-2.	\$	\$	\$
				\$ NSP

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0003	Option 1-Demo of a Micro Ion Thruster System CPFF - In accordance with the Statement of Work, Attachment 1. Demonstration of a full thruster prototype, including all supporting assemblies-a propellant system, power and control system, and neutralizer-and increases the thruster power to 100W and the specific impulse range to cover 2,000s-10,000s.	(b)(4)	(b)(4)	\$2,217,261.00
				\$

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0004	Option 1 Reports and Data CPFF - Reports and Data in accordance with Section C-2.	\$	\$	\$
				\$ NSP

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0005	Option 2-Demo of a MIT at Low Specific Impulse CPFF - In accordance with the Statement of Work, Attachment 1. Phase 3 extends the functionality of the Phase 2 thruster prototype by increasing the power level by one order of magnitude and further widening the specific impulse range of the thruster, down to 500s specific impulse.	(b)(4)	(b)(4)	\$2,036,748.00
				\$

ITEM NO	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	TOTAL EST. COST PLUS FIXED FEE
0006	Option 2 Reports and Data CPFF - Reports and Data in accordance with Section C-2.	\$	\$	\$
				\$ NSP

SECTION C Descriptions and Specifications**CLAUSES INCORPORATED BY FULL TEXT****C-1 Scope of Work**

- (a) The Contractor shall furnish the necessary personnel, materials, facilities and other services as may be required to perform Contract Line Item Numbers (CLINs) 0001 and 0002 in accordance with the Statement of Work, Attachment 1 hereto, and as specified in the Contractor's proposal entitled "Micro Ion Thruster System Development", dated May 3, 2004, copies of which are in possession of both parties.
- (b) The Contractor shall furnish the necessary personnel, materials, facilities, and other services as may be required to perform Contract Line Item Numbers (CLINs) 0003, 0004, 0005, and 0006 respectively, if and to the extent exercised, in accordance with the Statement of Work, Attachment 1 hereto, and as specified in the Contractor's proposal entitled "Micro Ion Thruster System Development", dated May 3, 2004, copies of which are in possession of both parties.
- (c) In the event of an inconsistency between the provisions of this contract and the Contractor's proposal, the inconsistency shall be resolved by giving precedence in the following order: (1) the contract, (2) the attachments to the contract, and then (3) the Contractor's proposal.
(end of clause)

C-2 Reports and Other Deliverables

- (a) The Contractor shall submit the following reports and other deliverables in accordance with the delivery schedule set forth in Section F. Reports and other deliverables shall be submitted in writing, as defined in FAR 2.101, or as specified below:

(1) R&D STATUS REPORT

This brief narrative, not to exceed five pages in length, shall contain the following:

- (i) For first report only; the date work actually started.
- (ii) Description of progress during the reporting period, supported by reasons for any change in approach reported previously
- (iii) Planned activities and milestones for the next reporting period.
- (iv) Description of any major items of experimental or special equipment purchased or constructed during the reporting period.
- (v) Notification of any changes in key personnel associated with the contract during the reporting period.
- (vi) Summary of substantive information derived from noteworthy trips, meetings, and special conferences held in connection with the contract during the reporting period.
- (vii) Summary of all problems or areas of concern.
- (viii) Related accomplishments since last report.
- (ix) Fiscal status, to include reporting of summary level financial data in the following format: (next page)

**R&D STATUS REPORT
PROGRAM FINANCIAL STATUS**

Work Breakdown

Cumulative to Date

At Completion

Structure or Task Element	Planned Expend	Actual Expend	% Budget Compl	At Compl	Latest Revised Estimate	Remarks
------------------------------	-------------------	------------------	-------------------	-------------	-------------------------------	---------

Subtotal:

Management
Reserve:
Or
Unallocated
Resources:

TOTAL:

Note: Budget at completion changes only with the amount of any scope changes. (Not affected by underrun or overrun)

Based on currently authorized work:

Is current funding sufficient for the current fiscal year (FY)? (Explain in narrative if "NO")

YES NO

What is the next FY funding requirement at current anticipated levels?

\$

Have you included in the report narrative any explanation of the above data and are they cross-referenced?

YES NO

(2) TEST PLAN

This plan will be prepared in the Contractor's format in accordance with the Statement of Work, Attachment 1.

(3) GANTT CHART

This document will be prepared in the Contractor's format.

(4) PROJECT DEFINITION DOCUMENT

This document will be prepared in the Contractor's format.

(5) PROJECT SERVER

The Contractor is required to update the Project Server monthly.

(6) FINANCIAL REPORT

This document will be prepared in the Contractor's format in accordance with the Statement of Work, Attachment 1.

(7) MISCELLANEOUS

The Contractor is responsible for all other deliverables cited in the Statement of Work, Attachment 1.

(8) DD FORM 882. REPORT OF INVENTIONS OF SUBCONTRACTS

This report shall be submitted in accordance with FAR 52.227-11 Patent Rights-Retention by the Contractor (Short Form) (JUN 1997).

(9) FINAL REPORT

This report shall document the results of the complete effort and should be delivered at the completion of the contract. If the Government chooses to exercise the options under this contract, the due date for the final report is extended accordingly. Title pages shall include a disclaimer worded substantially as follows:

"The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the official policies, either expressly or implied, of the Defense Advanced Research Projects Agency or the U.S. Government."

The Final Technical Report summary shall include:

Task Objectives

Technical Problems

General Methodology (i.e., literature review, laboratory experiments, surveys, etc.)

Technical Results

Important Findings and Conclusions

Significant Hardware Development

Special Comments

Implications for Further Research

Standard Form 298, September 1988

(b) Reports delivered by the Contractor in the performance of the contract shall be considered "Technical Data" as defined in Section I contract clauses entitled "Rights in Technical Data - Noncommercial Items" and "Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation."

(c) Bulky Reports shall be mailed by other than first-class mail unless the urgency of submission requires use of first-class mail. In this situation, one copy shall be mailed first-class and the remaining copies forwarded by less than first-class.

(d) All papers and articles published as a result of DARPA sponsored research shall include a statement reflecting the sponsorship. In addition, a bibliography of the titles and authors of all such papers are to be included in the Final Technical Report

(1) The cover or title page of each of the above reports or publications prepared, will have the following citation:

Sponsored by
Defense Advanced Research Projects Agency
Microsystems Technology Office (MTO)
Program: Micro Electric Propulsion
ARPA Order No. S938/00/01, Program Code: 4H20
Issued by DARPA/CMO under Contract No. HR0011-04-C-0107

(10) The title page shall include a disclaimer worded substantially as follows:

"The views and conclusions contained in this document are those of the authors and should not be interpreted as representing the official policies, either expressly or implied, of the Defense Advanced Research Projects Agency or the U.S. Government."

(11) All technical reports must (1) be prepared in accordance with American National Standards Institute (ANSI) Standard Z39.18; (2) include a Standard Form 298, August 1998; and (3) be marked with an appropriate Distribution Statement.
(end of clause)

SECTION D Packaging and Marking

CLAUSES INCORPORATED BY FULL TEXT

D-1 Packaging and Marking

- (a) All items shall be preserved, packaged, packed and marked in accordance with best commercial practices to meet the packing requirements of the carrier, and to ensure safe delivery at destination.
(end of clause)

SECTION E Inspection and Acceptance

INSPECTION AND ACCEPTANCE TERMS

Supplies/services will be inspected/accepted at destination by Contracting Officer's Representative (COR), as identified in Section G-4.

CLAUSES INCORPORATED BY REFERENCE:

52.246-8	Inspection Of Research And Development Cost Reimbursement	MAY 2001
252.246-7000	Material Inspection And Receiving Report	MAR 2003

SECTION F Deliveries or Performance

DELIVERY INFORMATION

CLAUSES INCORPORATED BY REFERENCE:

52.247-34	F.O.B. Destination	NOV 1991
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CLAUSES INCORPORATED BY FULL TEXT

F-1 Term of Contract

- (a) The term of the contract commences on the effective date of the contract and continues through 12 months thereafter.

- (b) The period of performance for Option 1, as set forth in CLINs 0003 and 0004, shall be from the effective date of the option exercise and extends the basic contract by an additional 12 months.
- (c) The period of performance for Option 1, as set forth in CLINs 0005 and 0006, shall be from the effective date of the option exercise and extends the basic contract and Option 1 by an additional 12 months.

(end of clause)

F-2 Reports and Other Deliverables

- (a) Delivery of all reports and other deliverables shall be made to the addressee specified in F-3 entitled "Report Distribution" in accordance with the following:

Item No.	Description	Due Date (on or before)
0002	R&D Status Report	Quarterly (starting July 1, 2004)
0002	Test Plan	September 1, 2004
0002	Gantt Chart	August 20, 2004; September 3, 2004; Thereafter, last working day of each month
0002	Project Definition Document	August 20, 2004; September 3, 2004; Thereafter, last working day of each month
0002	Project Server Updates	Last working day of each month
0002	Financial Report	Last working day of each month
0002	DD Form 882, Report of Inventions and Subcontracts	Interim report submitted annually; final report submitted upon expiration of the contract
0002	Final Report	June 1, 2005 (unless Option 1 is exercised)
0004	R&D Status Report	Quarterly
0004	Test Plan	Three months after Option 1 is exercised
0004	Gantt Chart	Last working day of each month
0004	Project Definition Document	Two weeks after Option 1 is exercised
0004	Project Server Updates	Last working day of each month
0004	Financial Report	Last working day of each month
0004	DD Form 882, Report of Inventions and Subcontracts	Interim report submitted annually; final report submitted upon expiration of the contract
0004	Final Report	Twelve months after Option 1 is exercised

		(unless Option 2 is exercised)
0006	R&D Status Report	Quarterly
0006	Test Plan	Three months after Option 2 is exercised
0006	Gantt Chart	Last working day of each month
0006	Project Definition Document	Two weeks after Option 2 is exercised
0006	Project Server Updates	Last working day of each month
0006	Financial Report	Last working day of each month
0006	DD Form 882, Report of Inventions and Subcontracts	Interim report submitted annually; final report submitted upon expiration of the contract
0006	Final Report	Twelve months after Option 2 is exercised

(end of clause)

F-3 Report Distribution

(a) DARPA/MTO

Attn: John Evans
3701 North Fairfax Drive
Arlington, VA 22203-1714
Email: jevans@darpa.mil
(one copy each report)

(b) DARPA/MTO

Attn: ADPM
3701 North Fairfax Drive
Arlington, VA 22203-1714
(one copy each report)

(c) DARPA/Library

3701 North Fairfax Drive
Arlington, VA 22203-1714
Email: library@darpa.mil
(one copy of the Final Technical Report)

(d) Defense Technical Information Center

- (1) Email: TR@dtic.mil
(one electronic copy of the Final Technical Report, if unclassified)

OR

(2) Attn: DTIC-BCS
 8725 John J. Kingman Road, Suite 0944
 Fort Belvoir, VA 22060-0944
 (two hard copies of the Final Technical Report if unclassified)

(e) DARPA/CMO
 Attn: Scott Ulrey
 3701 North Fairfax Drive
 Arlington, VA 22203-1714
 (one copy each report)

(f) DCMA SAN FRANCISCO
 Attn: Janet Lopez
 P.O. Box 232
 French Camp, CA 95231-0232
 (one copy each report)

(g) COR
 John Michael Fife
 Propulsion Directorate/PRSS
 1 Ara Rd.
 Edwards AFB, CA 93524-7190
 (one copy each report)

(end of clause)

F-4 Notice Regarding Late Delivery

(a) In the event the Contractor anticipates difficulty in complying with the contract delivery schedule, the Contractor shall immediately notify the Contracting Officer in writing, giving pertinent details, including the date by which it expects to make delivery; PROVIDED, however, that this date shall be informational only in character and the receipt thereof shall not be construed as a waiver by the Government of any contract delivery schedule, or any rights or remedies provided by law or under this contract.
 (end of clause)

SECTION G Contract Administration Data

ACCOUNTING AND APPROPRIATION DATA

AA:	9740400 1320 S938 P4H20 2525 DPAC 4 5370 S12136 63739E	
AMOUNT:	\$254,000.00	000000000000
AB:	5743600 294 6001 671200 0000 659901 E448418 659901	
AMOUNT:	\$350,000.00	000000000000

CLAUSES INCORPORATED BY REFERENCE:

252.242-7000 Postaward Conference

DEC 1991

CLAUSES INCORPORATED BY FULL TEXT

G-1 Procuring Office Representative

(a) The Procuring Office Representative is Scott Ulrey, DARPA/CMO, 3701 North Fairfax Drive, Arlington, VA 22203-1714, telephone: 703-696-2434, e-mail: sulrey@darpa.mil.

(end of clause)

G-2 Invoices

(a) An original invoice identified by contract number, with supporting statements, shall be submitted for review and provisional approval to the cognizant audit agency listed below:

DCAA Peninsula Branch Office
480 San Antonio Road, Suite 150
Mountain View, CA 94040-1218
Phone (650) 917-5000

Or as directed by DCAA
(end of clause)

G-3 Delegation of Authority for Contract Administration

(a) DCMA San Francisco, is hereby designated as the Contracting Officer's authorized representative for administering this contract in accordance with current directives.

(end of clause)

G-4 Contracting Officer's Representative (COR)

(a) Performance of work under this contract shall be subject to the technical direction of John Michael Fife, Propulsion Directorate/PRSS, 1 Ara Rd., Edwards AFB, CA 93524-7190, telephone (661) 275-6792, e-mail: John.Fife@edwards.af.mil. Such technical direction includes those instructions to the Contractor necessary to accomplish the Statement of Work. The COR is not otherwise authorized to make any representations or

commitments of any kind on behalf of the Contracting Officer or the Government. The COR does not have the authority to alter the Contractor's obligations or to change the specifications of the contract.

(b) Technical direction shall not include any direction which:

- (1) Constitutes additional work outside the scope of work;
 - (2) Constitutes a change as defined in Section I contract clause entitled "Changes";
 - (3) In any manner causes an increase or decrease in the total estimated cost or the time required for contract performance; or
 - (4) Changes any of the stated terms, conditions, or specifications of the contract.
- (end of clause)

G-5 Payment Instructions for Multiple Accounting Classification Citations

- (a) Payments under contract line items funded by multiple accounting classification citations shall be made from the earliest available fiscal year funding sources. The earliest assigned ACRN must be fully disbursed before making disbursements from a succeeding ACRN.
- (end of clause)

G-6 Incremental Funding

- (a) This contract shall be subject to incremental funding with \$604,000 presently made available for performance under this contract. It is estimated that the funds presently available are sufficient to permit the Contractor's performance through January 31, 2005. Except in accordance with the Section I clause FAR 52.232-22, "Limitation of Funds," no legal liability of the part of the Government for payment of any money in excess of \$604,000 shall arise unless and until additional funds are made available by the Contracting Officer through a modification to this contract.
- (end of clause)

G-7 Payment of Cost and Fee

- (a) As consideration for the proper performance of work required under this contract, the Contractor shall be paid as follows:
- (1) Costs, as provided for under Section I contract clause titled "Allowable Cost and Payment" not to exceed the amount set forth as "Total Estimated Cost" in Section B, and subject further to those Section I clauses entitled "Limitation of Cost" or "Limitation of Funds".
 - (2) A fixed fee in the amount set forth as "Fixed Fee" in Section B, in accordance with the Section I contract clause entitled "Fixed Fee". The Contractor may bill on each invoice the amount of the fixed fee bearing the same percentage to the total fixed fee as the amount of cost billed bears to the total estimated cost.
- (end of clause)

SECTION H Special Contract Requirements**CLAUSES INCORPORATED BY FULL TEXT****H-1 Contracting Officer**

- (a) Notwithstanding any other provision of this contract, the Contracting Officer is the only individual authorized to redirect the effort or in any way amend or modify any of the terms of this contract. If, as a result of technical discussions, it is desirable to alter contract obligations or statement of work, a modification must be issued in writing and signed by the Contracting Officer.
(end of clause)

H-2 Type of Contract

- (a) This is a research and development, cost plus fixed fee completion contract.
(end of clause)

H-3 Public Release or Dissemination of Information

- (a) There shall be no dissemination or publication, except within and between the Contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of the COR. All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the Contractor. Papers resulting from unclassified contracted fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.
- (b) When submitting material for clearance for open publication, the Contractor must furnish DARPA Technical Information Officer, 3701 North Fairfax Drive, Arlington VA 22203-1714, telephone (703) 526-4163 with five copies and allow four weeks for processing. Viewgraph presentations must be accompanied with a written text. Whenever a paper is to be presented at a meeting, the Contractor must indicate the exact dates of the meeting or the Contractor's date deadline for submitting the material.
(end of clause)

H-4 Key Personnel

- (a) The Contractor shall notify the Contracting Officer prior to making any change in key personnel. Key personnel are as follows:

(b)(4)

- (b) The Contractor must demonstrate that the qualifications of the prospective personnel are equal to or better than the qualifications of the personnel being replaced. Notwithstanding any of the foregoing provisions, key personnel shall be furnished unless the Contractor has demonstrated to the satisfaction of the COR that the

qualifications of the proposed substitute personnel are equal to or better than the qualifications of the personnel being replaced.
(end of clause)

H-5 Restrictions on Printing

(a) Unless otherwise authorized in writing by the Contracting Officer, reports, data, or other written material produced using funds provided by this contract and submitted hereunder shall be reproduced only by duplicating processes and shall not exceed 5,000 single page reports or a total of 25,000 pages of a multiple-page report. These restrictions do not preclude the writing, editing, preparation of manuscript or reproducible copy of related illustrative materials if required as part of this contract, or incidental printing such as forms or materials necessary to be used by the Contractor to respond to the terms of the contract.
(end of clause)

H-6 Contractor Representations and Certifications

(a) The Contractor's Representations and Certifications dated May 18, 2004 are incorporated herein by reference.
(end of clause)

H-7 Insurance Schedule

(a) The Contractor shall maintain the types of insurance listed in FAR 28.307-2 (a), (b) and (c), with the minimum amounts of liability indicated therein. The types of insurance coverage listed in paragraphs (d) and (e) shall also be maintained when applicable.
(end of clause)

H-8 Travel

(a) Reimbursement for travel-related expenses shall be in accordance with the Contractor's approved travel policy. The Federal Travel Regulations, Joint Travel Regulations (JTR), and Standardized Regulations as stated in FAR 31.205-46 will be used as a guide in determining reasonableness of per diem costs. Costs for travel shall be allowable subject to the provisions of FAR 31.205-46.

(b) In connection with direct charge to the contract of travel-related expenses, the Contractor shall hold travel to the minimum required to meet the objectives of the contract, and substantial deviations from the amount of travel agreed to during contract negotiation shall not be made without the authorization of the Contracting Officer.

When applicable, the Contractor shall notify the COR of proposed travel of an employee beyond that agreed to during negotiations.

(c) Approval of the Contracting Officer shall be obtained in advance for attendance by personnel at training courses, seminars, and other meetings not directly related to contract performance if the costs for the courses, seminars, and other meetings are charged to the contract.

(d) All foreign travel shall be authorized and approved in advance, in writing, by the Contracting Officer. Request for such travel must be submitted to the Contracting Officer at least forty-five (45) days in advance of traveler's anticipated departure date, and shall include traveler's itinerary of United States Flag Air Carriers.
(end of clause)

H-9 Metric System

- (a) The Defense Advanced Research Projects Agency (DARPA) will consider the use of the metric system in all of its activities consistent with operational, economical, technical and safety requirements.
- (b) The metric system will be considered for use in all new designs. When it is deemed not to be in the best interest of the DoD to provide metric design, justification shall be provided.
- (c) Physical and operational interfaces between metric items and U.S. customary items will be designed to assure that interchangeability and interoperability will not be affected.
- (d) Existing designs dimensioned in U.S. customary units will be converted to metric units only if determined to be necessary or advantageous. Unnecessary retrofit of existing systems with new metric components will be avoided where both the new metric and existing units are interchangeable and interoperable. Normally, the system of measurement in which an item is originally designed will be retained for the life of the item.
- (e) During the metric transition phase hybrid metric and U.S. customary designs will be necessary and acceptable. Material components, parts, subassemblies, and semi-fabricated material, which are of adequate or when it is otherwise specifically determined to be in the best interest of the Department of Defense. Bulk materials will be specified and accepted in metric units when it is expedient or economical to do so.
- (f) Technical reports, studies, and position papers, (except those pertaining to items dimensioned in U.S. customary units) will include metric units of measurement in addition to or in lieu of U.S. customary units. With respect to existing contracts, this requirement applies only if such documentation can be obtained without an increase in contract costs.
- (g) Use of the dual dimensions (i.e., both metric and U.S. customary dimensions) on drawings will be avoided unless it is determined in specific instances that such usage will be beneficial. However, the use of tables on the document to translate dimensions from one system of measurement to the other is acceptable.
(end of clause)

H-10 Consent to Subcontract

- (a) Pursuant to the clause of the General Provisions entitled "Subcontracts (AUG 1998)," FAR 52.244-2, the Contracting Officer hereby consents to the placement of subcontract(s) with the following firm(s)/consultant(s) at the ceiling amounts specified:

NAME	TOTAL AMOUNT
(b)(4)	(b)(4)

- (b) Approval must be obtained from the Administrative Contracting Officer to increase the use or number of subcontractors from the level established in subparagraph 1.
(end of clause)

H-11 Pre-contract Costs

(a) The extent of allowability of costs incurred by the Contractor prior to the effective date of the contract shall be governed by the advance agreement listed in Section J as Attachment 2.
(end of clause)

H-12 Small Business Subcontracting Plan and Goals

(a) The Contractor's Small Business Subcontracting Plan, dated July 19, 2004, is incorporated herein and made a part of this contract by reference.
(end of clause)

H-13 Contractor-Acquired Property (Special Test Equipment)

(a) The Contractor is authorized to acquire the following items of special test equipment which are needed to accomplish this contract:

	<u>Items To Be Acquired</u>	<u>Estimated Cost</u>
Base	Vacuum System	\$15,177
	Data & Test System	\$10,135
	200 W Power Supply	\$ 2,750
	Misc. Cables and Connectors	\$ 500
Option 2	2 kW Power Supply	\$ 4,650
Total		\$42,412

(b) The costs incurred by the Contractor in acquiring the special test equipment listed in paragraph (a) above shall be considered allowable costs under the contract provided that the total net amount of the special test equipment does not exceed \$42,412. The Contractor shall have no obligation to acquire special test equipment and the Government shall have no obligation to reimburse any amount for special test equipment in excess of the amount set forth above unless the contract is amended to increase this amount.

(c) The special test equipment listed above shall be considered Government Property and shall be subject to the provisions of FAR 52.245-05, incorporated by reference in Section I.

(d) The Contractor shall not use Contractor-acquired property listed above for work other than that performed pursuant to this contract unless so authorized in writing by the Contracting Officer.
(end of clause)

H-14 Contractor Acquired Property (IT)

(a) Performance of this contract will require use of the information technology (IT) resources listed below, acquisition of which (or equivalent) is hereby authorized:

ITEM	TOTAL AMOUNT
LORENTZ-2D PC version software	\$9,200

(b) The costs incurred by the Contractor in acquiring the IT listed in paragraph (1.) above shall be considered allowable costs under the contract provided that the total net amount of the IT does not exceed \$9,200. The Contractor shall have no obligation to acquire IT and the Government shall have no obligation to reimburse any amount for IT in excess of the amount set forth above unless the contract is modified to increase this amount.

(c) The IT resources listed above shall be considered Government Property and shall be subject to the provisions of FAR 52.245-5, incorporated in Section I.

(d) The Contractor shall not use Contractor acquired property listed above for work other than that performed pursuant to this contract unless so authorized in writing by the Contracting Officer.

(e) This authorization is subject to the Contractor's compliance with the approvals and screening requirements set forth in DFARS Subpart 239.73 and DoD 7950.1-M, "Defense Automation Resources Management Manual."

(1) Use of the DD Form 1851 for determining availability of excess information technology (IT) is only required for IT with a unit acquisition cost of \$50,000 and above.

(2) On-line screening for excess IT, regardless of cost, via remote terminal dial-up, is available to contractors through their Administrative Contracting Officers.
(end of clause)

H-15 Proprietary Technical Data and Computer Software

(a) Any deliverable technical data or computer software developed or generated at private expense and considered to be proprietary by the Contractor or subcontractors shall be delivered in accordance with DFARS 252.227-7013 and 252.227-7014. A list of such data and/or software is incorporated into the contract as Attachment No. N/A.
(end of clause)

H-16 Consultants

(a) The contractor is authorized to use the following consultants to the extent indicated:

<u>Name</u>	<u>No. of Hours</u>	<u>Rate</u>	<u>Total Amount</u>
-------------	---------------------	-------------	---------------------

NO CONSULTANTS AUTHORIZED AS OF THE EFFECTIVE DATE OF THIS CONTRACT.

(b) Approval must be obtained from the Administrative Contracting Officer to increase the use of consultants from the level estimated in subparagraph (1.).
(end of clause)

H-17 Exercise of Options

The Government may exercise the options, if at all, identified by CLINs 0003 and 0004 and CLINs 0005 and 0006 by unilateral modification to the contract; provided, however, that the Government shall have provided the Contractor a written notice of intent to exercise and option thirty (30) days in advance of the start of the option period. Absent such a notice, an option may be exercised, if at all, by bilateral modification to the contract.
(end of clause)

H-18 Title to Equipment (Nonprofit Institutions of Higher Education and Nonprofit Organizations)

In accordance with FAR 35.014, "Government property and title", title to all equipment purchased with funds available for research under this contract shall vest in the acquiring nonprofit institution, namely SRI International, upon acquisition without further obligation to the Government. The equipment shall be used for the conduct of basic or applied scientific research.
(end of clause)

SECTION I Contract Clauses

CLAUSES INCORPORATED BY REFERENCE:

52.202-1	Definitions	JUN 2004
52.203-3	Gratuities	APR 1984
52.203-5	Covenant Against Contingent Fees	APR 1984
52.203-6	Restrictions On Subcontractor Sales To The Government	JUL 1995
52.203-7	Anti-Kickback Procedures	JUL 1995
52.203-8	Cancellation, Rescission, and Recovery of Funds for Illegal or Improper Activity	JAN 1997
52.203-10	Price Or Fee Adjustment For Illegal Or Improper Activity	JAN 1997
52.203-12	Limitation On Payments To Influence Certain Federal Transactions	JUN 2003
52.204-4	Printed or Copied Double-Sided on Recycled Paper	AUG 2000
52.209-6	Protecting the Government's Interest When Subcontracting With Contractors Debarred, Suspended, or Proposed for Debarment	JUL 1995
52.215-2	Audit and Records--Negotiation	JUN 1999
52.215-8	Order of Precedence--Uniform Contract Format	OCT 1997
52.215-10	Price Reduction for Defective Cost or Pricing Data	OCT 1997
52.215-12	Subcontractor Cost or Pricing Data	OCT 1997
52.215-15	Pension Adjustments and Asset Reversions	JAN 2004
52.215-16	Facilities Capital Cost of Money	JUN 2003
52.215-18	Reversion or Adjustment of Plans for Postretirement Benefits (PRB) Other than Pensions	OCT 1997
52.215-19	Notification of Ownership Changes	OCT 1997
52.216-7	Allowable Cost And Payment	DEC 2002
52.216-8	Fixed Fee	MAR 1997
52.217-9	Option To Extend The Term Of The Contract	MAR 2000
52.219-8	Utilization of Small Business Concerns	MAY 2004
52.219-9	Small Business Subcontracting Plan	JAN 2002
52.219-16	Liquidated Damages-Subcontracting Plan	JAN 1999
52.219-23	Notice of Price Evaluation Adjustment for Small Disadvantaged Business Concerns	JUN 2003
52.222-2	Payment For Overtime Premiums	JUL 1990
52.222-3	Convict Labor	JUN 2003
52.222-21	Prohibition Of Segregated Facilities	FEB 1999
52.222-26	Equal Opportunity	APR 2002
52.222-35	Equal Opportunity For Special Disabled Veterans, Veterans of the Vietnam Era, and Other Eligible Veterans	DEC 2001
52.222-36	Affirmative Action For Workers With Disabilities	JUN 1998
52.222-37	Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, and Other Eligible Veterans	DEC 2001
52.223-6	Drug-Free Workplace	MAY 2001
52.223-14	Toxic Chemical Release Reporting	AUG 2003
52.225-13	Restrictions on Certain Foreign Purchases	DEC 2003
52.226-1	Utilization Of Indian Organizations And Indian-Owned Economic Enterprises	JUN 2000
52.227-1	Authorization and Consent	JUL 1995
52.227-2	Notice And Assistance Regarding Patent And Copyright Infringement	AUG 1996
52.227-11	Patent Rights--Retention By The Contractor (Short Form)	JUN 1997
52.228-7	Insurance--Liability To Third Persons	MAR 1996

52.230-2	Cost Accounting Standards	APR 1998
52.230-3	Disclosure And Consistency Of Cost Accounting Practices	APR 1998
52.230-6	Administration of Cost Accounting Standards	NOV 1999
52.232-9	Limitation On Withholding Of Payments	APR 1984
52.232-17	Interest	JUN 1996
52.232-20	Limitation Of Cost	APR 1984
52.232-22	Limitation Of Funds	APR 1984
52.232-23	Assignment Of Claims	JAN 1986
52.232-25	Prompt Payment	OCT 2003
52.232-33	Payment by Electronic Funds Transfer--Central Contractor Registration	OCT 2003
52.233-1	Disputes	JUL 2002
52.233-2	Service Of Protest	AUG 1996
52.233-3 Alt I	Protest After Award (Aug 1996) - Alternate I	JUN 1985
52.242-1	Notice of Intent to Disallow Costs	APR 1984
52.242-3	Penalties for Unallowable Costs	MAY 2001
52.242-4	Certification of Final Indirect Costs	JAN 1997
52.242-13	Bankruptcy	JUL 1995
52.242-15	Stop-Work Order	AUG 1989
52.243-2 Alt V	Changes--Cost-Reimbursement (Aug 1987) - Alternate V	APR 1984
52.244-2 Alt I	Subcontracts (Aug 1998) - Alternate I	AUG 1998
52.244-6	Subcontracts for Commercial Items	MAY 2004
52.245-5 (Dev)	Government Property (Cost-Reimbursement, Time-and-Material, and Labor-Hour Contracts) (Deviation)	JUN 2003
52.246-8	Inspection Of Research And Development Cost Reimbursement	MAY 2001
52.246-23	Limitation Of Liability	FEB 1997
52.247-63	Preference For U.S. Flag Air Carriers	JUN 2003
52.247-64	Preference for Privately Owned U.S. - Flag Commercial Vessels	APR 2003
52.249-6	Termination (Cost Reimbursement)	MAY 2004
52.249-14	Excusable Delays	APR 1984
52.251-1	Government Supply Sources	APR 1984
52.253-1	Computer Generated Forms	JAN 1991
252.201-7000	Contracting Officer's Representative	DEC 1991
252.203-7001	Prohibition On Persons Convicted of Fraud or Other Defense-Contract-Related Felonies	MAR 1999
252.203-7002	Display Of DOD Hotline Poster	DEC 1991
252.204-7002	Payment For Subline Items Not Separately Priced	DEC 1991
252.204-7003	Control Of Government Personnel Work Product	APR 1992
252.204-7004	Required Central Contractor Registration Alternate A	NOV 2003
Alt A		
252.205-7000	Provision Of Information To Cooperative Agreement Holders	DEC 1991
252.209-7000	Acquisition From Subcontractors Subject To On-Site Inspection Under The Intermediate Range Nuclear Forces (INF) Treaty	NOV 1995
252.209-7004	Subcontracting With Firms That Are Owned or Controlled By The Government of a Terrorist Country	MAR 1998
252.215-7000	Pricing Adjustments	DEC 1991
252.215-7002	Cost Estimating System Requirements	OCT 1998
252.219-7004	Small, Small Disadvantaged Women-Owned Business Subcontracting Plan (Test Program)	JUN 1997
252.219-7011	Notification to Delay Performance	JUN 1998
252.225-7012	Preference For Certain Domestic Commodities	JUN 2004
252.225-7016	Restriction On Acquisition Of Ball and Roller Bearings	MAY 2004
252.225-7025	Restriction on Acquisition of Forgings	APR 2003
252.226-7001	Utilization of Indian Organizations and Indian-Owned Economic Enterprises, and Native Hawaiian Small Business Concerns	OCT 2003

252.227-7013	Rights in Technical Data--Noncommercial Items	NOV 1995
252.227-7014	Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation	JUN 1995
252.227-7016	Rights in Bid or Proposal Information	JUN 1995
252.227-7017	Identification and Assertion of Use, Release, or Disclosure Restrictions	JUN 1995
252.227-7019	Validation of Asserted Restrictions--Computer Software	JUN 1995
252.227-7027	Deferred Ordering Of Technical Data Or Computer Software	APR 1988
252.227-7030	Technical Data--Withholding Of Payment	MAR 2000
252.227-7037	Validation of Restrictive Markings on Technical Data	SEP 1999
252.231-7000	Supplemental Cost Principles	DEC 1991
252.232-7003	Electronic Submission of Payment Requests	JAN 2004
252.235-7010	Acknowledgment of Support and Disclaimer	MAY 1995
252.235-7011	Final Scientific or Technical Report	SEP 1999
252.242-7004	Material Management And Accounting System	DEC 2000
252.243-7002	Requests for Equitable Adjustment	MAR 1998
252.244-7000	Subcontracts for Commercial Items and Commercial Components (DoD Contracts)	MAR 2000
252.245-7001	Reports Of Government Property	MAY 1994
252.246-7000	Material Inspection And Receiving Report	MAR 2003
252.247-7023	Transportation of Supplies by Sea	MAY 2002
252.247-7024	Notification Of Transportation Of Supplies By Sea	MAR 2000
252.251-7000	Ordering From Government Supply Sources	OCT 2002

CLAUSES INCORPORATED BY FULL TEXT

52.247-1 COMMERCIAL BILL OF LADING NOTATIONS (APR 1984)

If the Contracting Officer authorizes supplies to be shipped on a commercial bill of lading and the Contractor will be reimbursed these transportation costs as direct allowable costs, the Contractor shall ensure before shipment is made that the commercial shipping documents are annotated with either of the following notations, as appropriate:

(a) If the Government is shown as the consignor or the consignee, the annotation shall be:

"Transportation is for the authorized contract supplies under Contract Number HR0011-04-C-0107 and the actual total transportation charges paid to the carrier(s) by the consignor or consignee are assignable to, and shall be reimbursed by, the Government."

(b) If the Government is not shown as the consignor or the consignee, the annotation shall be:

"Transportation is for the authorized contract supplies under Contract Number HR0011-04-C-0107 and the actual total transportation charges paid to the carrier(s) by the consignor or consignee shall be reimbursed by the Government, pursuant to cost-reimbursement contract no. HR0011-04-C-0107. This may be confirmed by contacting the Administrative Contracting Officer, DCMA San Francisco."

(End of clause)

52.252-2 CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://farsite.hill.af.mil/>

52.252-6 AUTHORIZED DEVIATIONS IN CLAUSES (APR 1984)

(a) The use in this solicitation or contract of any Federal Acquisition Regulation (48 CFR Chapter 1) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the date of the clause.

(b) The use in this solicitation or contract of any Defense Federal Acquisition Regulation Supplement (48 CFR Chapter 2) clause with an authorized deviation is indicated by the addition of "(DEVIATION)" after the name of the regulation.

(End of clause)

SECTION J List of Documents, Exhibits and Other Attachments

Attachment 1 Statement of Work, dated 8/3/04

Attachment 2 Precontract Cost Agreement, dated 6/11/04

SRI INTERNATIONAL
STATEMENT OF WORK
FOR
MICRO ION THRUSTER SYSTEM DEVELOPMENT

AUGUST 3, 2004

The following text defines the statement of work (SOW) and deliverables for the MFTT Project in Phase 1 and the two optional phases, Phases 2 and 3. The tasks are essentially the same in each Phase, except that in Phase 1 there will be no activity associated with 5 of the tasks (as indicated). A parallel project with DARPA will address all the activity that would have been covered by these tasks in Phase 1.

Project Name: Micro Ion Thruster System

Phase 1: Demonstration of a Gated Liquid Metal Ion Source

Task 1: Gated Nozzle Design (All Phases). Design and demonstrate a thruster gated nozzle that meets the proposed program objectives as best as possible, including suggested design options to meet future phase objectives. This will be carried out in the form of three subtasks:

Task 1a: Design Modeling and Geometry. Model nozzle physics and electromagnetic, thermal, power, and structural issues to converge on a nozzle design. Refine the device architecture and design details to permit the same core technology to address the objectives for each phase.

Task 1b: Materials and Process Development. Explore materials and fabrication process issues required to build the arrived at nozzle designs.

Task 1c: Nozzle Fabrication. Fabricate nozzle arrays for testing and system development

Task 2: Power and Control Subsystem (Phases 2-3). Design and demonstrate a thruster power and control subsystem that meets power efficiency objectives. Designs will be based on an SRI proprietary controller design and implementation developed for robust operation of field emission and field ionization devices. This will be carried out in the form of three subtasks as defined below. *No work will be performed under this task in Phase 1.*

Task 2a. Design power and control subsystem. Design a power and control subsystem that meets the proposal stated power efficiency requirements in each project phase, allow operation over the specific impulse range defined for each phase, operate a thruster neutralizer to balance charge emission, and can be scaled in future phases to the higher power levels required by future phases.

Task 2b. Fabricate power and control subsystem. Fabricate the necessary power and control circuits required to verify prototype micro thruster operation

Task 2c. Demonstrate power and control subsystem. Collect data on operation of the power and control subsystem as defined in the test plan and in conjunction with prototype testing to demonstrate operation and efficiency metrics are met.

Task 3: Propellant Subsystem (Phases 2-3). Design and demonstrate a propellant storage and feed subsystem that addresses program power, specific mass, and propellant capacity objectives. This will be carried out in the form of three subtasks as defined below. *No work will be performed under this task in Phase 1.*

Task 3a. Design propellant subsystem. Design a propellant feed subsystem that can handle the delivery of liquid metal to the operating thruster, operate in a space environment, and meet the desired specific mass and propellant capacities.

Task 3b. Fabricate the propellant subsystem. Fabricate the propellant subsystem components and verify their operation.

Task 3c. Demonstrate the propellant subsystem. Demonstrate the propellant subsystem specifications by measurements as defined in the test plan, and by demonstrating propellant delivery to an operational thruster prototype.

Task 4: Neutralizer Subsystem (Phases 2-3). Design and demonstrate a neutralizer subsystem for the prototype thruster that addresses program defined power and specific mass objectives. This will be carried out in the form of three subtasks as defined below. *No work will be performed under this task in Phase 1.*

Task 4a. Design a neutralizer subsystem. Design a thruster neutralizer based on Spindt-type field emission electron sources that are compatible with the control electronics designed in Task 2 to operate the thruster and neutralizer.

Task 4b. Fabricate a neutralizer subsystem. Fabricate the neutralizer.

Task 4c: Demonstrate the neutralizer subsystem. Demonstrate the operation of the neutralizer in conjunction with operation of the micro thruster prototype.

Task 5: Microfabricated Component Packaging (Phases 2-3). Design and demonstrate a mounting and packaging assemblies that address the integration of the necessary micro thruster components in a way that meets the program defined specific mass objective. This will be carried out in the form of three subtasks as defined below. *No work will be performed under this task in Phase 1.*

Task 5a. Design component packaging. Design component mounting and assembly packaging for all elements of the thruster prototype required to meet program objectives – this includes the propellant subsystem, power and control electronics, neutralizer subsystem, and ion source.

Task 5b. Fabricate component packaging. Fabricate mounting and packaging. Off-the-shelf technology will be used where possible, or modified if possible.

Task 5c. Demonstrate component packaging. Demonstrate that mounting and packaging meet the project specific mass objectives for each phase and that components are vacuum and space operation compatible.

Task 6: Prototype Systems Engineering and Integration (Phases 2-3). Conduct systems engineering trade studies, analyses, and design necessary for integration and test of the prototype micro thruster. Integrate the necessary assemblies into a prototype that meets the program-defined objectives. This will be carried out in the form of two subtasks as defined below. *No work will be performed under this task in Phase 1.*

Task 6a. Conduct engineering trade studies. Conduct systems engineering and design trade studies that yield requirements and design guidelines for the development, in other tasks, of all subsystems required to demonstrate the prototype micro thruster.

Task 6b. Integrate the prototype micro thruster. Integrate the necessary prototype components and subsystems required to test the proposed micro thruster.

Task 7: Prototype Testing and Analysis (All Phases). Demonstrate the objectives of each phase by conducting performance tests and evaluating device performance through data analysis. A final test will be conducted to which the client or client's representative will be invited. This will be carried out in the form of three subtasks as defined below.

Task 7a. Test plans and evaluation tools. Prepare test plans, develop evaluation tools and supporting equipment, including software and data acquisition systems, required to demonstrate the prototype micro thruster in each project phase.

Task 7b. Conduct performance tests. Conduct the proposed tests and performance measurements needed to verify performance in each phase of the project. These tests include demonstration test as defined for each subsystem development task.

Task 7c. Evaluate Performance. Evaluate data collected to verify performance metrics, and perform analysis of results as required.

Task 8: Reporting (All Phases). Provide DARPA with the following report inputs:

- a) **Quarterly reports** – Quarterly reports will provide financial, programmatic, and technical summaries for the quarter being covered. Each quarterly report will have two appendices that summarize technical progress. One appendix will cover development status from the first half of each quarter and the second appendix will cover development status from the second half of each quarter. Advance copies of the technical summary covering the first half of each quarter will be provided to the program manager as an interim status update at approximate mid-way points between each quarterly report.
- b) **Test Plan** – A test plan will be prepared that defines general test processes and procedures for verification of program object in each year. In Phase 1, this will be submitted by 1 Sep. 2004, for review and approval by the Program Manager. Early in each future phase the document will be updated as appropriate.
- c) **Final Report** – A final report will be delivered summarizing design and development activities carried out during each phase, and providing a summary of final performance data, test results, analyses comparing measured to proposed performance, and suggestions for next phase.
- d) **Financial and Expense reporting** will be submitted monthly per DARPA specifications.

Task 9: Technology Transfer (All Phases). SRI will interact with market partners to address market and technology transfer issues. Partners will provide insights on supporting subsystems (e.g. power electronics), industry test practices, and market entry requirements. Partners will participate in regular Technical Interchange Meetings (TIMS), at least two per year, to provide feedback and review of development progress, and to prepare for testing at the end of each phase.

Task 10: Administration (All Phases). Management and technical oversight for the project will be provided; including regular staff status meetings and coordination of technical interchange meetings. Monthly communication will take place between the project lead and DARPA

program manager to provide regular status and insight into project technical progress, finances, and schedule.

Deliverables: The deliverables for this project are of two types – reports and a final device demonstration. The reports are summarized under Task 8 – Reporting, and consist of quarterly reports, a test plan, a final report, and monthly financial and expense reports. The demonstration deliverable will in each phase consists of a final test to which the client or client's representative will be invited, as described under Task 7 – Prototype Testing and Analysis.

Titles for Options – Phase 2 and 3. Titles for Phase 2 and 3 are provided below. The tasks for each of these options will be the same as those listed above, but in each phase a new set of objectives will be addressed as defined by the proposal. In each phase these objectives cover increases in the range of specific impulse and improvements in performance over the previous phase, and higher power operation.

Phase 2: Demonstration of a Micro Ion Thruster System

Description: Phase 2 involves demonstration of a full thruster prototype, including all supporting assemblies—a propellant system, power and control system, and neutralizer—and increases the thruster power to 100W and the specific impulse range to cover 2,000s–10,000s.

Phase 3: Demonstration of a Micro Ion Thruster at Low Specific Impulse

Description: Phase 3 extends the functionality of the Phase 2 thruster prototype by increasing the power level by one order of magnitude and further widening the specific impulse range of the thruster, down to 500s specific impulse.

**ADVANCE AGREEMENT TO AUTHORIZE INCURRENCE OF
PRECONTRACT COSTS UNDER CONTRACT NUMBER
HR0011-04-C-0107**

**THIS AGREEMENT SUPERCEDES THE ADVANCED AGREEMENT TO AUTHORIZE INCURRENCE OF
PRECONTRACT COSTS UNDER CONTRACT NUMBER HR0011-04-C-0107 DATED MAY 24, 2004.**

Reference: (a) DARPA Procurement Guidance S938/00, dated May 21, 2004
(b) SRI International Technical Proposal entitled, "Micro Ion Thruster System Development," dated May 3, 2004
(c) SRI International Cost Proposal, dated May 3, 2004

The Contracts Management Office (CMO), Defense Advanced Research Projects Agency (DARPA) has received a valid and properly funded procurement request (reference (a)) in support of DARPA's Microsystems Technology Office, Micro-Electric Propulsion Program. This request follows upon receipt of reference (b), and its evaluation under Broad Agency Announcement 03-41. The issuance of a cost-plus-fixed-fee contract is intended.

Since the Contracting Officer has determined that incurrence of costs before the effective date of the contract is necessary to ensure compliance with the proposed contract delivery schedule, the Government and the Contractor agree as follows:

FIRST: In the event that a contract is awarded, precontract costs, not to exceed \$282,000, shall be allowable under the contract resulting from the incorporation of reference (b), provided that the individual costs therein shall be:

- (1) Otherwise allowable, reasonable and allocable;
- (2) Separately collected by proposed task shown in reference (c) and by cost element;
- (3) Incurred no sooner than May 24, 2004; and
- (4) Incurred specifically and exclusively to attend the May 25-26, 2004, MBP Kickoff Meeting to establish the work goals and begin performance on Task 1 "Gated Nozzle Design", Task 7 "Prototype Testing And Analysis", and Task 8 "Reporting", Task 9 "Technology Transfer", and Task 10 "Administration" as set forth in the reference (b).

SECOND: Contract specifications and price shall be agreed to by the earlier of:


- (1) July 31, 2004; and
- (2) The date on which the amount of funds obligated, committed or expended under this Advance Agreement is equal to no more than \$282,000.

THIRD AND FINALLY: It is the intention of the Government to award a contract to the Contractor, subject to final agreement on the contract terms, specifications and price(s). Any resulting contract shall incorporate this Advance Agreement. It is understood and agreed by both parties that this Agreement concerns the treatment of pre-award costs in the event of Contract award. This Agreement does not require the Contractor to incur any such costs, and any such costs incurred are at the risk of the Contractor, pending the award of a contract.

09 June 2004
DATE

6/11/2004
DATE


NAME AND TITLE Lori L. Mazzei
SRI International Contract Administrator

(b)(6)

Contracting Officer
Contracts Management Office